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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,480	11/21/2001	Akihiro Iino	S004-3509 (CON)	7239

7590 01/29/2003  
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EXAMINER

BUDD, MARK OSBORNE

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 01/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

997 480

Applicant(s)

Iino et al

Examiner

M. Budd

Group Art Unit

2834

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- ☒ Responsive to communication(s) filed on 11-21-01
- ☐ This action is FINAL.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 1-12 is/are pending in the application.
- ☐ Of the above claim(s) is/are withdrawn from consideration.
- ☐ Claim(s) is/are allowed.
- ☒ Claim(s) 1-12 is/are rejected.
- ☐ Claim(s) is/are objected to.
- ☐ Claim(s) are subject to restriction or election requirement

## Application Papers

- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☒ All ☐ Some\* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. 09/177455
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s) 3(11-21-01) ☐ Interview Summary, PTO-413
- ☒ Notice of Reference(s) Cited, PTO-892 ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948 ☐ Other \_\_\_\_\_

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Claims 1-12 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

These claims are vague, indefinite and based on an inadequate disclosure. Firstly, figure 13 appears to be inaccurate in showing the output #31 being perpendicular to the laminating direction. The written descriptions and other figures all indicate the output is in a direction parallel to the lamination direction e.g. figs 1 and 13. It would be helpful if applicant could provide a perspective view of the various embodiments so that "side" views (e.g. fig 1) could establish where electrodes #32, #33, #34 are located in relation to 'top', 'bottom', 'front' and 'back' surfaces. The disclosure is inadequate in that no drive circuitry with electrical connections to the various electrodes are shown. Thus one cannot determine how to drive the third piezo element "undergoing vibration in a phase identical to that of the stretching vibration". Also, does this mean the third piezo body is actually vibrating in a stretching mode itself? Applicants comments explain that the first, second and third electric bodies are supposed to correspond to #11A, #12A and #12D (applicant's fig 2?). However, the disclosure does not show #11A, #12A and #11D to constitute a complete unit. Note, e.g. that #12D appears to be critical to providing a fully operable device (see e.g. figs 1&2). Thus, claims 1-7 are either incomplete or inaccurate in omitting essential elements. Claims 8-12 are vague and indefinite in that they call for "a plurality of bodies generating bending and stretching vibrations, at least one of the vibrational bodies generating only the stretching vibration---" thus the claim contradicts itself by

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stating that at least one body cannot be producing bending vibrations. In e.g. claim 9 do both bodies produce both bending and stretching, or does one body produce both bending and stretching while the second undergoes bending (or stretching) only, or does the first body undergo bending only and the second body undergo stretching only? Claim 12 recites structure disclosed to provide both bending and stretching for all piezo electric bodies which conflicts with parent claim 8 which calls for one body to produce only stretching vibration. Because of the conflicting recitation and disclosure, lack of disclosure, one cannot determine the metes and bounds of these claims.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-12 (as understood) rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Zumeris (421) or (076).

Zumeris (421) (figs 1,2, 11, 13, 14 and 17) and Zumeris (076) (fig 9) teach plural piezo electric bodies using bending and stretching mode combinations to drive a sphere in any desired

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direction. It is unclear if at any given time at least one of the piezo bodies is operating in only the stretching mode. However, since it is the combination of bending and stretching vibrations that control the amplitude and inclination of the output elliptical motion it is reasonable to assume that with 360 degrees of freedom for the sphere that at some point in time one of the drive transducers would operate in only a stretching mode. Assuming, arguendo that the references don't explicitly teach one piezo body operating only in the stretching mode, it would have been obvious to one of ordinary skill in the art that at least one of the piezo bodies of Zumeris could operate in a pure bending as pure stretching mode in order to move the output sphere in a desired direction. Note, too, that it has long been held that the omission of an element with the consequent loss of its function is within the skill expected of the routineer. Thus to eliminate the bending or stretching mode with the consequent expected loss of motion would have been obvious to one of ordinary skill in the art.

Note that if any claims are eventually found to be allowable in this application they would probably become subject to a double patenting rejection over claims patented from the parent application.

Further cited of interest are Matsuda, Tomikawa, Ganor, O'Brien, Kasuga and Ino.

M BUDD/pj

01/24/03

MARK J. BUDD  
PRIMARY EXAMINER  
ART UNIT 215